

**Pipeline and Hazardous Materials Safety Administration, DOT**      **Pt. 195, App. B**

regulation. Solely because of some statutory economic deregulation, that pipeline is no longer regulated by FERC. DOT will continue to consider that pipeline to be an interstate pipeline facility.

As seen from the examples, the types of situations in which DOT will not defer to the FERC regulatory scheme are generally clear-cut cases. For the remainder of the situations where variation from the FERC scheme would require DOT to replicate the forum already provided by FERC and to consider economic factors better left to that agency, DOT will decline to vary its reliance on the FERC filings unless, of course, not doing so would result in situations clearly not intended by the HLPESA.

[Amdt. 195-33, 50 FR 15899, Apr. 23, 1985]

**APPENDIX B TO PART 195—RISK-BASED  
ALTERNATIVE TO PRESSURE TESTING  
OLDER HAZARDOUS LIQUID AND CARBON  
DIOXIDE PIPELINES**

**RISK-BASED ALTERNATIVE**

This Appendix provides guidance on how a risk-based alternative to pressure testing older hazardous liquid and carbon dioxide pipelines rule allowed by §195.303 will work. This risk-based alternative establishes test priorities for older pipelines, not previously pressure tested, based on the inherent risk of a given pipeline segment. The first step is to determine the classification based on the

type of pipe or on the pipeline segment's proximity to populated or environmentally sensitive area. Secondly, the classifications must be adjusted based on the pipeline failure history, product transported, and the release volume potential.

Tables 2-6 give definitions of risk classification A, B, and C facilities. For the purposes of this rule, pipeline segments containing high risk electric resistance-welded pipe (ERW pipe) and lapwelded pipe manufactured prior to 1970 and considered a risk classification C or B facility shall be treated as the top priority for testing because of the higher risk associated with the susceptibility of this pipe to longitudinal seam failures.

In all cases, operators shall annually, at intervals not to exceed 15 months, review their facilities to reassess the classification and shall take appropriate action within two years or operate the pipeline system at a lower pressure. Pipeline failures, changes in the characteristics of the pipeline route, or changes in service should all trigger a reassessment of the originally classification.

Table 1 explains different levels of test requirements depending on the inherent risk of a given pipeline segment. The overall risk classification is determined based on the type of pipe involved, the facility's location, the product transported, the relative volume of flow and pipeline failure history as determined from Tables 2-6.

**TABLE 1. TEST REQUIREMENTS—MAINLINE SEGMENTS OUTSIDE OF TERMINALS, STATIONS, AND TANK FARMS**

Pipeline segment	Risk classification	Test deadline <sup>1</sup>	Test medium
Pre-1970 Pipeline Segments susceptible to longitudinal seam failures <sup>2</sup> .	C or B	12/7/2000 <sup>3</sup> .....	Water only.
All Other Pipeline Segments .....	A	12/7/2002 <sup>3</sup> .....	Water only.
	C	12/7/2002 <sup>4</sup> .....	Water only.
	B	12/7/2004 <sup>4</sup> .....	Water only.
	A	Additional pressure testing not required.	Water/Liq. <sup>5</sup>

<sup>1</sup> If operational experience indicates a history of past failures for a particular pipeline segment, failure causes (time-dependent defects due to corrosion, construction, manufacture, or transmission problems, etc.) shall be reviewed in determining risk classification (See Table 6) and the timing of the pressure test should be accelerated.

<sup>2</sup> All pre-1970 ERW pipeline segments may not require testing. In determining which ERW pipeline segments should be included in this category, an operator must consider the seam-related leak history of the pipe and pipe manufacturing information as available, which may include the pipe steel's mechanical properties, including fracture toughness; the manufacturing process and controls related to seam properties, including whether the ERW process was high-frequency or low-frequency, whether the weld seam was heat treated, whether the seam was inspected, the test pressure and duration during mill hydrotest; the quality control of the steel-making process; and other factors pertinent to seam properties and quality.

<sup>3</sup> For those pipeline operators with extensive mileage of pre-1970 ERW pipe, any waiver requests for timing relief should be supported by an assessment of hazards in accordance with location, product, volume, and probability of failure considerations consistent with Tables 3, 4, 5, and 6.

<sup>4</sup> A magnetic flux leakage or ultrasonic internal inspection survey may be utilized as an alternative to pressure testing where leak history and operating experience do not indicate leaks caused by longitudinal cracks or seam failures.

<sup>5</sup> Pressure tests utilizing a hydrocarbon liquid may be conducted, but only with a liquid which does not vaporize rapidly.

Using LOCATION, PRODUCT, VOLUME, and FAILURE HISTORY "Indicators" from Tables 3, 4, 5, and 6 respectively, the overall risk classification of a given pipeline or pipeline segment can be established from Table 2. The LOCATION Indicator is the primary

factor which determines overall risk, with the PRODUCT, VOLUME, and PROBABILITY OF FAILURE Indicators used to adjust to a higher or lower overall risk classification per the following table.

TABLE 2—RISK CLASSIFICATION

Risk classification	Hazard location indicator	Product/volume indicator	Probability of failure indicator
A .....	L or M .....	L/L .....	L.
B .....		Not A or C Risk Classification	
C .....	H .....	Any .....	Any.

H=High M=Moderate L=Low.

NOTE: For Location, Product, Volume, and Probability of Failure Indicators, see Tables 3, 4, 5, and 6.

Table 3 is used to establish the LOCATION Indicator used in Table 2. Based on the population and environment characteristics asso-

ciated with a pipeline facility's location, a LOCATION Indicator of H, M or L is selected.

TABLE 3—LOCATION INDICATORS—PIPELINE SEGMENTS

Indicator	Population <sup>1</sup>	Environment <sup>2</sup>
H .....	Non-rural areas .....	Environmentally sensitive <sup>2</sup> areas.
M .....		
L .....	Rural areas .....	Not environmentally sensitive <sup>2</sup> areas.

<sup>1</sup>The effects of potential vapor migration should be considered for pipeline segments transporting highly volatile or toxic products.

<sup>2</sup>We expect operators to use their best judgment in applying this factor.

Tables 4, 5 and 6 are used to establish the PRODUCT, VOLUME, and PROBABILITY OF FAILURE Indicators respectively, in Table 2. The PRODUCT Indicator is selected from Table 4 as H, M, or L based on the acute and chronic hazards associated with the

product transported. The VOLUME Indicator is selected from Table 5 as H, M, or L based on the nominal diameter of the pipeline. The Probability of Failure Indicator is selected from Table 6.

TABLE 4—PRODUCT INDICATORS

Indicator	Considerations	Product examples
H .....	(Highly volatile and flammable) .....	(Propane, butane, Natural Gas Liquid (NGL), ammonia)
	Highly toxic .....	(Benzene, high Hydrogen Sulfide content crude oils).
M .....	Flammable—flashpoint <100F .....	(Gasoline, JP4, low flashpoint crude oils).
L .....	Non-flammable—flashpoint 100+F .....	(Diesel, fuel oil, kerosene, JP5, most crude oils).
	Highly volatile and non-flammable/non-toxic.	Carbon Dioxide.

Considerations: The degree of acute and chronic toxicity to humans, wildlife, and aquatic life; reactivity; and, volatility, flammability, and water solubility determine the Product Indicator. Comprehensive Environmental Response, Compensation and Liability Act Reportable Quantity values can be used as an indication of chronic toxicity. National Fire Protection Association health factors can be used for rating acute hazards.

TABLE 5—VOLUME INDICATORS

Indicator	Line size
H .....	≥18".
M .....	10"–16" nominal diameters.
L .....	≤8" nominal diameter.

H=High M=Moderate L=Low.

Table 6 is used to establish the PROBABILITY OF FAILURE Indicator used in Table 2. The "Probability of Failure" Indicator is selected from Table 6 as H or L.

TABLE 6—PROBABILITY OF FAILURE INDICATORS  
[in each haz. location]

Indicator	Failure history (time-dependent defects) <sup>2</sup>
H <sup>1</sup> .....	>Three spills in last 10 years.
L .....	≤Three spills in last 10 years.

H=High L=Low.

<sup>1</sup>Pipeline segments with greater than three product spills in the last 10 years should be reviewed for failure causes as described in subnote<sup>2</sup>. The pipeline operator should make an appropriate investigation and reach a decision based on sound engineering judgment, and be able to demonstrate the basis of the decision.

## Pipeline and Hazardous Materials Safety Administration, DOT Pt. 195, App. C

<sup>2</sup>Time-Dependent Defects are defects that result in spills due to corrosion, gouges, or problems developed during manufacture, construction or operation, etc.

[Amdt. 195-65, 63 FR 59480, Nov. 4, 1998; 64 FR 6815, Feb. 11, 1999]

### APPENDIX C TO PART 195—GUIDANCE FOR IMPLEMENTATION OF AN INTEGRITY MANAGEMENT PROGRAM

This Appendix gives guidance to help an operator implement the requirements of the integrity management program rule in §§ 195.450 and 195.452. Guidance is provided on:

- (1) Information an operator may use to identify a high consequence area and factors an operator can use to consider the potential impacts of a release on an area;
- (2) Risk factors an operator can use to determine an integrity assessment schedule;
- (3) Safety risk indicator tables for leak history, volume or line size, age of pipeline, and product transported, an operator may use to determine if a pipeline segment falls into a high, medium or low risk category;
- (4) Types of internal inspection tools an operator could use to find pipeline anomalies;
- (5) Measures an operator could use to measure an integrity management program's performance; and
- (6) Types of records an operator will have to maintain.

(7) Types of conditions that an integrity assessment may identify that an operator should include in its required schedule for evaluation and remediation.

I. Identifying a high consequence area and factors for considering a pipeline segment's potential impact on a high consequence area.

A. The rule defines a High Consequence Area as a high population area, an other populated area, an unusually sensitive area, or a commercially navigable waterway. The Office of Pipeline Safety (OPS) will map these areas on the National Pipeline Mapping System (NPMS). An operator, member of the public or other government agency may view and download the data from the NPMS home page <http://www.npms.phmsa.gov/>. OPS will maintain the NPMS and update it periodically. However, it is an operator's responsibility to ensure that it has identified all high consequence areas that could be affected by a pipeline segment. An operator is also responsible for periodically evaluating its pipeline segments to look for population or environmental changes that may have occurred around the pipeline and to keep its program current with this information. (Refer to § 195.452(d)(3).)

(1) Digital Data on populated areas available on U.S. Census Bureau maps.

(2) Geographic Database on the commercial navigable waterways available on <http://www.bts.gov/gis/ntatlas/networks.html>.

(3) The Bureau of Transportation Statistics database that includes commercially navigable waterways and non-commercially navigable waterways. The database can be downloaded from the BTS website at <http://www.bts.gov/gis/ntatlas/networks.html>.

B. The rule requires an operator to include a process in its program for identifying which pipeline segments could affect a high consequence area and to take measures to prevent and mitigate the consequences of a pipeline failure that could affect a high consequence area. (See §§ 195.452 (f) and (i).) Thus, an operator will need to consider how each pipeline segment could affect a high consequence area. The primary source for the listed risk factors is a US DOT study on instrumented Internal Inspection devices (November 1992). Other sources include the National Transportation Safety Board, the Environmental Protection Agency and the Technical Hazardous Liquid Pipeline Safety Standards Committee. The following list provides guidance to an operator on both the mandatory and additional factors:

(1) Terrain surrounding the pipeline. An operator should consider the contour of the land profile and if it could allow the liquid from a release to enter a high consequence area. An operator can get this information from topographical maps such as U.S. Geological Survey quadrangle maps.

(2) Drainage systems such as small streams and other smaller waterways that could serve as a conduit to a high consequence area.

(3) Crossing of farm tile fields. An operator should consider the possibility of a spillage in the field following the drain tile into a waterway.

(4) Crossing of roadways with ditches along the side. The ditches could carry a spillage to a waterway.

(5) The nature and characteristics of the product the pipeline is transporting (refined products, crude oils, highly volatile liquids, etc.) Highly volatile liquids becomes gaseous when exposed to the atmosphere. A spillage could create a vapor cloud that could settle into the lower elevation of the ground profile.

(6) Physical support of the pipeline segment such as by a cable suspension bridge. An operator should look for stress indicators on the pipeline (strained supports, inadequate support at towers), atmospheric corrosion, vandalism, and other obvious signs of improper maintenance.

(7) Operating conditions of the pipeline (pressure, flow rate, etc.). Exposure of the pipeline to an operating pressure exceeding the established maximum operating pressure.

(8) The hydraulic gradient of the pipeline.

(9) The diameter of the pipeline, the potential release volume, and the distance between the isolation points.